

REMARKS

The Office Action of December 4, 2006, has been carefully considered.

The Examiner has interpreted Claim 1, lines 3-4, as meaning that the mineral powders are optional, and Applicant agrees with this interpretation. New Claim 15 which replaces Claim 1 has been written using the term "optionally."

Claims 13-14, have been rejected under 35 USC 112, second paragraph, as being indefinite for failing to recite a positive method step in Claim 13. Claim 13 has now been replaced by new Claim 27, written in independent form, which recites positive method steps, and withdrawal of this rejection is requested.

Claims 1 through 14 have now been replaced by a new set of Claims 15 through 28 which have been written in proper form for US practice. Claim 15 is directed to a powder product for the protection of centrifugal casting molds used in the manufacture of cast iron pipes, comprising a mixture of at least one inoculating alloy, at least one strongly reducing metal that is volatile at the temperature of liquid cast iron, and optionally, inert mineral powder. The invention is thus directed to a powder which is a mixture of inoculating alloy and reducing metal, for example calcium or magnesium.

Claims 1-6, 11, 12 and 13 have been rejected under 35 USC 102(b) as anticipated by JP 11-277210, or under 35 USC 102(a) as anticipated by the corresponding US patent to Margaria et al.

Margaria et al is directed to a powder product for protection of molds for centrifugally casting cast iron pipes which comprises a mixture of a silicon based inoculating agent and a mineral powder. The silicon based inoculating agent may contain calcium, barium, aluminum, manganese, zirconium and

iron. The Office action takes the position that since calcium and strontium each has a boiling temperature below the melting temperature of the iron, they are therefore volatile at the temperature of the liquid cast iron.

Margaria et al does disclose an inoculating agent which can contain metals from column II of the periodic table. However, this inoculating agent is in alloy form; see for example Claim 3 of Margaria et al. Thus, the inoculating agent is an alloy based on silicon in association with various metals which can include calcium and strontium.

While calcium and strontium do *individually* have boiling temperatures below the melting point of cast iron, there is no teaching that they would be volatile when they are in the form of Margaria's inoculating alloys with silicon. Thus, Margaria et al does not disclose or suggest at least one strongly reducing metal volatile at the temperature of liquid cast iron *in admixture with* at least one inoculating alloy. Margaria et al discloses only the inoculating alloy in admixture with a mineral powder, and there is no additional reducing metal (or alloy) which is volatile at the temperature of the liquid cast iron in this mixture.

For that reason, Margaria et al does not anticipate the claimed invention and withdrawal of this rejection is requested.

Claims 1-7 and 11-12 have been rejected under 35 USC 102(b) as anticipated by Moore et al.

Moore et al has been cited for its teaching of a nodularizing alloy comprising magnesium ferrosilicon, rare earth fluoride, calcium fluoride and calcium silicide. The Office action states that "calcium silicide would inherently acts [sic] as a reducing metal."

While calcium silicide may act as a reducing agent in the

alloy of Moore et al, the composition disclosed by Moore et al is a "nodularizing alloy" which is injected in liquid form into molten cast iron. Moore et al does not disclose or suggest a powder comprising a mixture of inoculating alloy, calcium in a form in which it is volatile at the temperature of molten cast iron, and mineral powder.

Withdrawal of this rejection is requested.

Claims 1 through 5 and 7 have been rejected under 35 USC 103(a) over Russell et al.

Russell et al discloses a list of mold coating materials, among which are ferrosilicon and calcium silicide. The Office action takes the position that it would have been obvious to use a combination of these materials to coat a mold.

While calcium silicide is mentioned by Russell et al, it does not conform to the requirements that Russell et al sets out for mold coating materials.

Indeed, Russell et al states at page 1, lines 100 to 110, that "[i]t will be understood that the materials used to form a coating should be such as are not materially affected by the temperatures to which they are subjected either during application to the mold surface or by reason of their contact with the molten metal so that they retain their fine state of division and loose cohesion after the casting of the ingot and thus facilitate the withdrawal of the ingot from the mold..."

It must be assumed from this statement that Russell et al teaches that calcium silicide will not volatilize in contact with the liquid metal to which the mold is exposed.

To the contrary, the reducing metal in the powder composition of the invention *must volatilize* when brought into contact with the liquid metal.

Thus, Russell et al cannot be said to teach a mixture of ferrosilicon with calcium silicide, in which the calcium acts

a strongly reducing metal and volatilizes at the temperature of molten cast iron because Russell et al specifically teaches that the calcium silicide acts in a contrary manner.

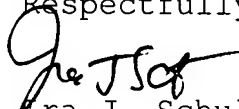
Withdrawal of this rejection is requested.

The allowability of Claims 8, 9 10 and 14 has been noted.

The specification has been amended to provide a reference to the prior PCT application.

In view of the foregoing amendments and remarks, Applicant submits that the present application is now in condition for allowance. An early allowance of the application with amended claims is earnestly solicited.

Respectfully submitted,



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